

What is claimed is:

- 1 1. A programmable robotic apparatus, comprising:
 - 2 a drive system comprising a plurality of independently operable treads;
 - 3 a control module in electrical communication with said drive system, said control
 - 4 module configured to command the operation of each tread;
 - 5 a memory module in electrical communication with said control module, said
 - 6 memory module configured to store and retrieve information; and
 - 7 an environmental signal detection module in electrical communication with said
 - 8 control module, said environmental signal detection module configured to
 - 9 discern at least one of a location and an orientation of said programmable
 - 10 robotic apparatus.
- 1 2. The programmable robotic apparatus of Claim 1, wherein said apparatus is
- 2 configured to operate autonomously based at least in part on information stored in said
- 3 memory module.
- 1 3. The programmable robotic apparatus of Claim 1, further comprising a tool
- 2 configured to perform a mechanical operation.
- 1 4. The programmable robotic apparatus of Claim 3, wherein said tool configured to
- 2 perform a mechanical operation is selected from the group consisting of a cutting tool, a
- 3 shoveling tool, and a vacuuming tool.
- 1 5. The programmable robotic apparatus of Claim 3, wherein said programmable robotic
- 2 apparatus is a programmable lawn mower.
- 1 6. The programmable robotic apparatus of Claim 1, wherein said memory module is
- 2 selected from the group consisting of a magnetic tape, a floppy disc, a hard disc, a CD-
- 3 ROM, a CD-RW disc, RAM, EPROM, EEPROM, and a flash memory.
- 1 7. The programmable robotic apparatus of Claim 1, wherein said environmental signal
- 2 detection module is configured to discern at least one of a location and an orientation
- 3 relative to at least one of a GPS satellite, a cellular telephone communication antenna, a
- 4 radio broadcast antenna, a television broadcast antenna, a radio broadcast satellite, and a
- 5 television broadcast satellite.
- 1 8. The programmable robotic apparatus of Claim 1, further comprising a command

2 receiver module in electrical communication with said control module.

1 9. The programmable robotic apparatus of Claim 8, wherein said command receiver
2 module is configured to receive signals from a portable transmitter.

1 10. The programmable robotic apparatus of Claim 8, wherein said command receiver
2 module is configured to receive signals comprising directives.

1 11. A method of operating a programmable robotic apparatus, comprising the steps of:
2 providing at least one command recorded on a machine-readable medium, said at
3 least one command representing an instruction for traversing an area of
4 interest;

5 operating said programmable robotic apparatus according to said at least one
6 command recorded on said machine-readable medium;
7 discerning an orientation of said programmable robotic apparatus;
8 comparing said orientation of said programmable robotic apparatus to a direction
9 recorded in said at least one command to determine an error signal; and
10 in the event that said error signal exceeds a predetermined value, commanding
11 said programmable robotic apparatus to take a corrective action;
12 whereby said programmable robotic apparatus autonomously traverses an area of
13 interest.

1 12. The method of Claim 11, wherein the steps of discerning an orientation, comparing
2 said orientation, and in the event that said error signal exceeds a predetermined value,
3 commanding said programmable robotic apparatus to take a corrective action, are performed
4 iteratively during a period of operation of said programmable robotic apparatus.

1 13. The method of Claim 11, further comprising the step of performing an operation with
2 a mechanical tool attached to said programmable robotic apparatus.

1 14. The method of Claim 13, wherein said programmable robotic apparatus stands in one
2 location during said operation with said mechanical tool.

1 15. A method of providing at least one command recorded on a machine-readable
2 medium, the at least one command representing an instruction for traversing an area of
3 interest, the method comprising the steps of:
4 providing a programmable robotic apparatus;

5 operating said programmable robotic apparatus under external control, the
6 programmable robotic apparatus receiving directives from an external source
7 and traversing an area of interest;
8 taking readings from a environmental signal detection module of said
9 programmable robotic apparatus; and
10 recording said directives and readings on a machine-readable medium for later
11 recovery.

1 16. The method of Claim 15, wherein said directives are recorded in the format in which
2 said directives are received.

1 17. The method of Claim 15, wherein said directives are recorded in a different format
2 from the format in which said directives are received.

1 18. A computer program recorded on a machine-readable medium, said computer
2 program comprising:

3 a supervisory module that controls the autonomous operation of a programmable
4 robotic apparatus and that, as required, receives information recorded on a
5 machine-readable medium;

6 an orientation receiver module that derives orientation information from a
7 environmental signal detection module of said programmable robotic
8 apparatus, and

9 a computation module that computes an error signal based at least in part on
10 orientation information derived from said environmental signal detection
11 module and information recorded on said machine-readable medium.

1 19. The computer program of Claim 18, further comprising:

2 an instruction receiver module that receives directives from an external source
3 regarding operation of said programmable robotic apparatus.

1 20. The computer program of Claim 18, further comprising:

2 an error correction module that, in the event that said error signal exceeds a
3 predetermined value, computes an error correction to be provided as a
4 corrective action command to said programmable robotic apparatus.